

CLAIMS

1. An electrically operated injector (1) for feeding a gaseous fuel to a cylinder of an internal combustion engine, in particular for a motor vehicle, comprising an electromagnetic actuator (2) acting on a discoidal mechanical interceptor member (3) arranged to free or intercept a passage (4) for said fuel from a feed conduit (61) to a delivery conduit (5) connected to an outlet (6), a seal element (40) being positioned between said delivery conduit (5) and said interceptor member (3), characterised in that the seal element (40) is fixed to the interceptor member (3) and moves with it.
- 10 2. An electrically operated injector as claimed in claim 1, characterised in that the seal element (40) is fixed in a seat (50) provided in that face or first face (3B) of the interceptor member (3) which faces the delivery conduit (5).
- 15 3. An electrically operated injector as claimed in claim 2, characterised in that the seal element (40) is co-moulded with the seat (50) of the interceptor member (3).
4. An electrically operated injector as claimed in claim 1, characterised in that the seal element (40) presents a recess (44) in that end (42) thereof which cooperates with an end (43) of the delivery conduit (5) when the injector (1) is deactivated, said end (42) being annular.
- 20 5. An electrically operated injector as claimed in claim 1, characterised in that the seal element (40) is of frusto-conical shape and rests with its tapered end (42) on the end (43) of the delivery conduit (5) when the injector is deactivated and the gas passage (4) is intercepted by the interceptor member (3).
- 25 6. An electrically operated injector as claimed in claim 5, characterised in that the wall (48) of the recess (44) or inner wall of the seal element (40) has an inclination different from that of an outer wall (47) of said seal element (40).

7. An electrically operated injector as claimed in claim 2, characterised in that the seat (50) for the seal element (40) contains a projection (58) on which said element rests and of which it substantially copies the shape.

8. An electrically operated injector as claimed in claim 7, characterised in
5 that the projection (58) presents an annular shape having an inner wall (49) and an outer wall (59), the inner wall (49) acting as a support for the seal element when urged into closure by the member which intercepts the gas passage (4).

9. An electrically operated injector as claimed in claim 8, characterised in
that the walls (49, 59) of the projection (58) have different inclinations to a
10 common axis (M) which is perpendicular to that face (3A) of the interceptor member in which the seat (50) for the seal element is present.

10. An electrically operated injector as claimed in claim 2, characterised in
that the seal element (40) projects from the first face (3B) of the interceptor member in which its seat (50) is provided.

15 11. An electrically operated injector as claimed in claim 1, characterised in
that the interceptor member (3) presents, on that face or second face (3A)
distant from the first face (3B) carrying the seal element, a projecting part (35)
jutting from said second face (A) and arranged to rest against the
electromagnetic actuator (2) when the injector is open and the interceptor
20 member (3) frees the gas passage (4), said member (3) being hence
maintained at least partially detached from said actuator (1) when the injector is
open.

12. An electrically operated injector as claimed in claim 11, characterised in
that the projecting part (35) is annular.

25 13. An electrically operated injector as claimed in claim 12, characterised in
that the projecting part (35) is a part separate from the interceptor member (3).

14. An electrically operated injector as claimed in claim 11, characterised in

that the second face (3A) of the interceptor member (3) presents a seat (30) for an end (31) of a pin (24) partially inserted into an inner cavity (13A) of a cylindrical part (13) of the electromagnetic actuator (2), said pin maintaining the interceptor member (3) perpendicular to its direction of movement relative to
5 said actuator (2).

15. An electrically operated injector as claimed in claim 14, characterised in that said pin is of wear-resistant plastic.

16. An electrically operated injector as claimed in claim 1, characterised in that the delivery conduit (5) comprises a plurality of portions (5A, 5B, 5C), two of
10 which have variable cross-sections along their axis (K).

17. An electrically operated injector as claimed in claim 16, characterised in that a first portion (5A) of variable cross-section lies in proximity to that end (43) of the conduit (5) which cooperates with the interceptor member and has a cross-section which converges towards the axis (K) in moving away from said
15 end (43).

18. An electrically operated injector as claimed in claim 16, characterised in that the second portion (5B) of variable cross-section follows the first (5A) and diverges along the axis (K) in moving away from said first portion.

19. An electrically operated injector as claimed in claim 16, characterised in
20 that a hole for sizing the gas flow directed to the outlet (6) is provided between said first portion (5A) and second portion (5B) of the delivery conduit (5).

20. An electrically operated injector as claimed in claim 16, characterised in that a delivery conduit third portion (5C) lies between the second portion (5B) and the outlet (6) and is of constant cross-section.